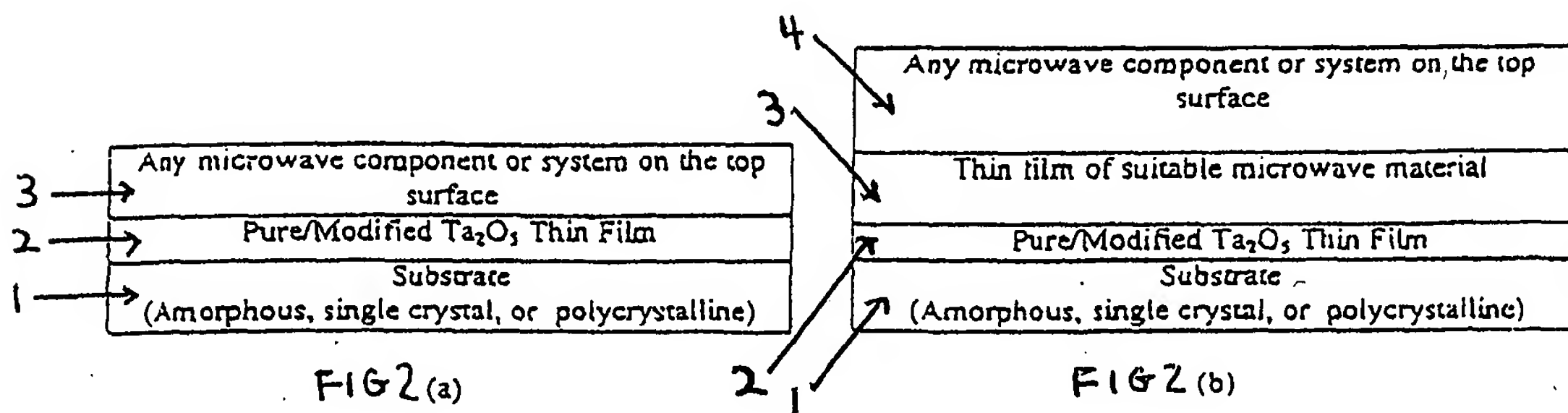


Fig. 1. Flow diagram for the fabrication of pure and modified Ta_2O_5 thin films by the chemical precursor solution technique using alkoxide-salt precursor solution prepared under room temperature conditions.



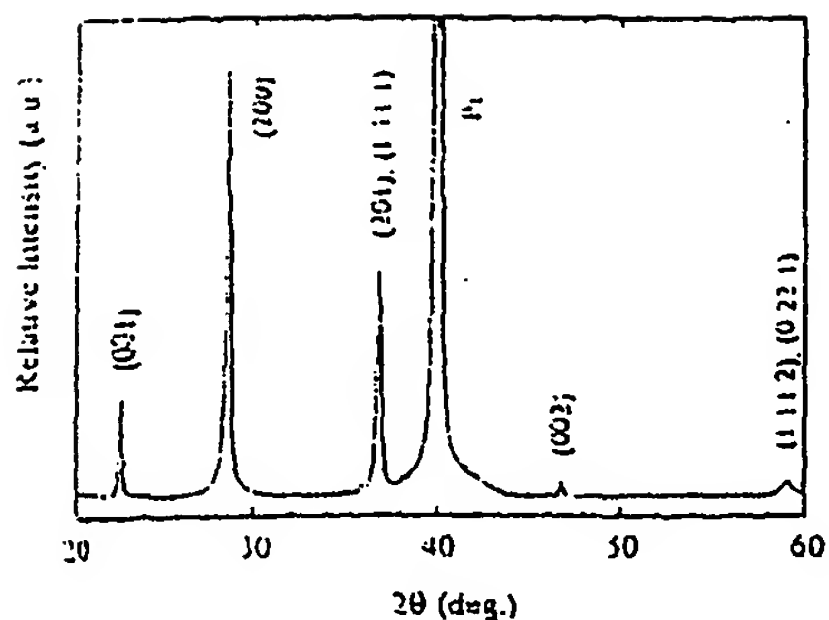


Fig. 3. X-ray diffraction patterns of Ta_2O_5 thin films annealed at 750 °C.

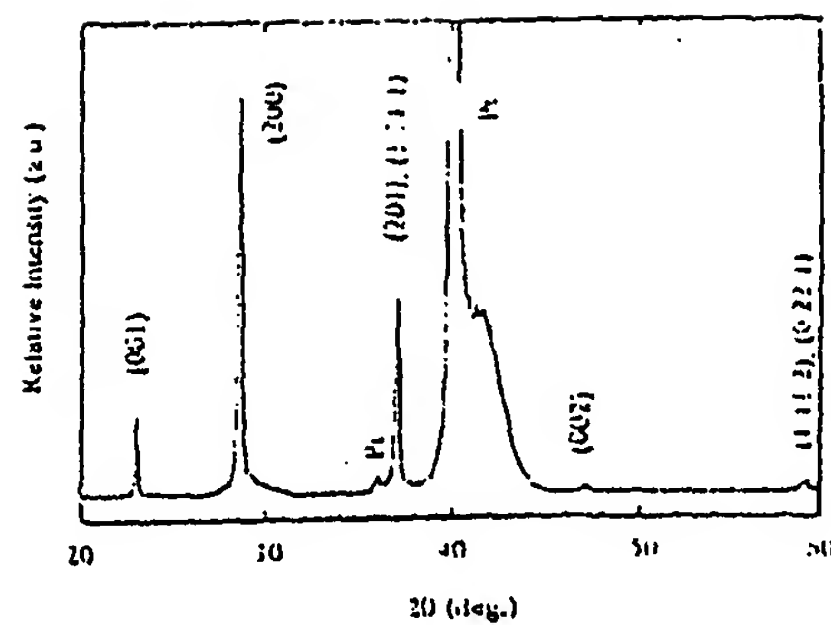


Fig. 4. X-ray diffraction patterns of 0.9 Ta_2O_5 -0.1 Al_2O_3 thin films annealed at 750 °C.

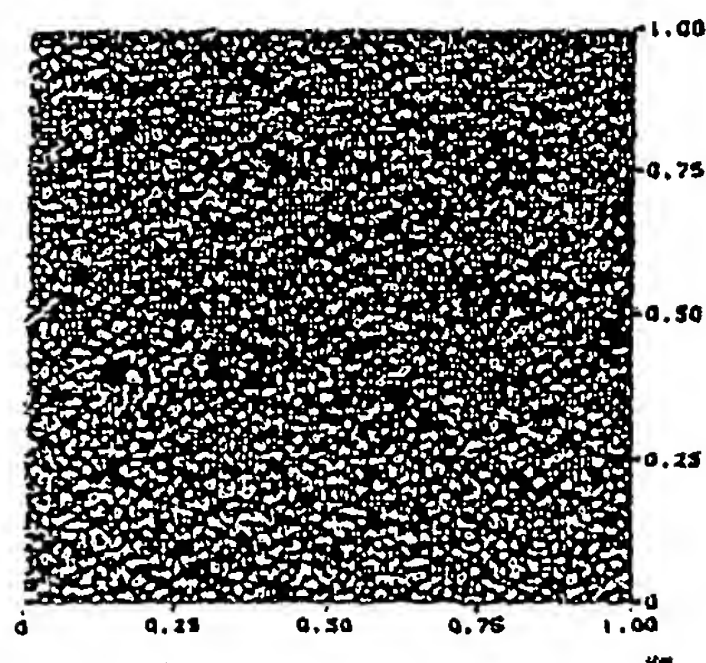


Fig. 5. AFM photograph of 0.9 Ta_2O_5 -0.1 Al_2O_3 thin films annealed at 750 °C.

0.9 Ta_2O_5 -0.1 Al_2O_3 Thin Films	
Dielectric Constant	42.8
Dissipation Factor	0.005
Charge Storage Density	18.9 fC/ μm^2 (at 0.5 MV/cm)
Leakage Current Density	$< 10^{-9}$ A/ cm^2 (at 0.5 MV/cm)
Temperature Coefficient of Capacitance	-20 ppm/°C (range 25-125 °C)
Bias Stability of Capacitance	0.4% (up to 1 MV/cm)

Fig 6.

Table I. Enhanced dielectric and insulating properties of 0.9 Ta_2O_5 -0.1 Al_2O_3 thin films annealed at 750 °C.